

## CLAIMS

1. The use as a gelling agent, of a relatively nonpolar compound or a nonionic surfactant, of at least one block copolymer comprising the following units:

~~5     $-X-(R^1)_m-(OA)_n-X-$  (I), and

$-[NH-R^2-NHCO-R'^2-CO]_r-$  (IIa), and/or

$-[NH-R^3-CO]_s-$  (IIb), and

$-OC-R^4-CO-$  (III)~~

in which units:

10    ~~□ X corresponds to the end function of said unit after  
          reaction with an amine or carboxylic acid function;~~

□ R<sup>1</sup>, which may be identical or different, represent a linear or branched alkyl radical comprising 2 to 4 carbon atoms;

15    □ OA, which may be identical or different, represent an  
oxyethylenated, oxypropylenated or oxybutylenated  
radical, or mixtures thereof;

□  $R^2$ ,  $R'^2$ ,  $R^3$  and  $R^4$ , which may be identical or different, represent:

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- a linear or branched alkyl radical comprising 2 to 18 carbon atoms,
- an aryl radical comprising one or more optionally substituted aromatic nuclei,

□  $m$  is equal to 0 or 1,

25  $n$  is an integer between 4 and 800.

or is such that the number of amide bonds is between 1 and 15 per unit (I),

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- s is such that the number of amide bonds is between 1 and 15 per unit (I),
  - the molar ratio of the number of units (III) to the number of units (I) is between 0.5/1 and 1.4/1;
  - 5 □ the various units are linked together at least by means of amide bonds;
  - the number-average molar mass of the copolymer is less than 100 000 g/mol.

2. The use as claimed in the preceding  
10 claim, characterized in that the units (I) of the copolymer comprise a sequence of oxyethylenated, oxypropylenated or oxyethylenated/oxypropylenated radicals, the sum of the units being equal to n.

3. The use as claimed in either of the  
15 preceding claims, characterized in that the radicals  $R^2$ ,  $R'^2$ ,  $R^3$  and  $R^4$ , which may be identical or different, represent linear or branched radicals comprising 2 to 12 carbon atoms, and preferably methylene radicals, optionally bearing one or more methyl radicals.

20 4. The use as claimed in the preceding claim, characterized in that the radicals  $R^2$ ,  $R'^2$ ,  $R^3$  and  $R^4$ , which may be identical or different, are chosen from:

□ ethyl, 1-methylethyl, propyl, 1-methylpropyl,  
25 butyl, hexyl, heptyl, octyl, decyl, undecyl and lauryl radicals.

5. The use as claimed in any one of the preceding claims, characterized in that the radicals  $R^2$ ,

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$R'^2$ ,  $R^3$  and  $R^4$ , which may be identical or different, represent aryl radicals comprising one or more optionally substituted aromatic nuclei.

6. The use as claimed in the preceding
- 5 claim, characterized in that the radicals  $R^2$ ,  $R'^2$ ,  $R^3$  and  $R^4$ , which may be identical or different, comprise:
- \* an aromatic nucleus, the reactive functions (amines or carboxylic acids) being in an ortho, meta or para position,
  - 10 \* two aromatic nuclei, linked via inert groups, or peri-fused, for instance divalent naphthyl radicals, the reactive functions (amines or carboxylic acids) being on the carbon atoms 1 and 2, 1 and 4, 1 and 5, 1 and 6, 1 and 7 or 2 and 7.
- 15 7. The use as claimed in any one of claims 1 to 4, characterized in that the units (IIa) or (IIb) are chosen from polyamide 6, polyamide 10, polyamide 11, polyamide 12, polyamide 6,6 or a random copolymer of at least two such polyamides, in all
- 20 proportions, preferably 50/50.

8. The use as claimed in any one of the preceding claims, characterized in that  $r$  and  $s$ , which may be identical or different, are such that the number of amide bonds is between 5 and 10 per unit (I).

- 25 9. The use as claimed in any one of the preceding claims, characterized in that the number-average molecular mass of the copolymer is between 10 000 and 50 000 g/mol.

10. The use as claimed  
preceding claims, characterized  
polar compound is in the Hans  
has the following parameters  
P of Keesom interactions of 1  
6.5 (J/cm<sup>3</sup>)<sup>1/2</sup>  
H of hydrogen bonds of less t  
0.5 (J/cm<sup>3</sup>)<sup>1/2</sup>  
D of London interactions of g  
5 (J/cm<sup>3</sup>)<sup>1/2</sup>

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11. The use as claimed in any one of the preceding claims, characterized in that the nonionic surfactant is chosen from:

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[illegible]

- . alkoxyated terpenic hydrocarbons such as ethoxylated and/or propoxylated  $\alpha$ - or  $\beta$ -pinenes, containing from 1 to 30 oxyethylene and/or oxypropylene units;
  - . alkylpolyglycosides which may be obtained by
- 5     condensation of glucose with primary fatty alcohols containing a C<sub>4</sub>-C<sub>20</sub> alkyl group and also an average number of glucose units of about from 0.5 to 3 per mole of alkylpolyglycoside.

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10     12. The use as claimed in any one of the preceding claims, characterized in that the amount of copolymer relative to the relatively nonpolar compound or the nonionic surfactant is between 0.1% and 15% by weight and preferably between 0.5% and 10% by weight.

15     13. The use as claimed in any one of the preceding claims, characterized in that, in the case of gelation of a relatively nonpolar compound, the copolymer is combined with a nonionic or anionic surfactant.

20     14. The use as claimed in the preceding claim, characterized in that the amount of nonionic or anionic surfactant relative to the relatively nonpolar compound is between 5% and 20% by weight.

25     15. The use as claimed in any one of the preceding claims, characterized in that the copolymer is combined with a filler of lamellar structure.

16. The use as claimed in the preceding claim, characterized in that the amount of filler represents up to 20% by weight of the copolymer.

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17. The use as claimed in either of claims 15 and 16, characterized in that the filler is introduced during the preparation of the copolymer and/or during the use of said copolymer.

5 18. The use as claimed in any one of claims 1 to 17, characterized in that the copolymer and the relatively nonpolar compound or the nonionic surfactant form part of the composition of formulations intended for cleaning metals.

10 19. The use as claimed in any one of claims 1 to 17, characterized in that the copolymer and the relatively nonpolar compound or the nonionic surfactant form part of the composition of detergent formulations which may be used in the industrial field.

15 20. The use as claimed in any one of claims 1 to 17, characterized in that the copolymer and the relatively nonpolar compound or the nonionic surfactant form part of the composition of formulations intended for stripping paints and varnishes.

20 21. The use as claimed in any one of claims 15 to 17, characterized in that the copolymer and the relatively nonpolar compound or the nonionic surfactant form part of the composition of formulations intended for cleaning or stripping vertical surfaces.

25 22. The use as claimed in any one of claims 1 to 17, characterized in that the copolymer and the relatively nonpolar compound or the nonionic surfactant form part of the composition of formulations

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intended for treating plants.

23. The use as claimed in any one of  
claims 1 to 17, characterized in that the copolymer and  
the relatively nonpolar compound or the nonionic  
5 surfactant form part of the composition of formulations  
used in the field of printing inks.

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